622
So
8
ERGIN STORAGE

South Australia.

TN
122
S7A3
no. 8
Physical & Applied Sci Serials
Engineering

BUREAU OF MINES,
RECEIVED
OCT 30 1908
ONTARIO
DEPTY MINISTER OF MINES

A REVIEW

OF

MINING OPERATIONS

IN THE

STATE OF SOUTH AUSTRALIA

DURING THE

HALF-YEAR ENDED JUNE 30TH, 1908.

No. 8.

DEPARTMENT OF GEOLOGICAL SCIENCES,
UNIVERSITY OF TORONTO

ISSUED BY T. DUFFIELD, J.P., *Secretary for Mines*,

UNDER THE AUTHORITY OF THE

HONORABLE L. O'LOUGHLIN, M.P.,

Minister of Mines.

LIBRARY
JAN 9 1969
UNIVERSITY OF TORONTO

DO NOT REMOVE
FROM THIS ROOM

Adelaide:
C. E. BRISTOW, GOVERNMENT PRINTER, NORTH TERRACE.

1908.

South Australia.

A REVIEW

OF

MINING OPERATIONS

IN THE

STATE OF SOUTH AUSTRALIA

DURING THE

HALF-YEAR ENDED JUNE 30TH, 1908.

No. 8.

ISSUED BY T. DUFFIELD, J.P., *Secretary for Mines*,

UNDER THE AUTHORITY OF THE

HONORABLE L. O'LOUGHLIN, M.P.,

Minister of Mines.

Adelaide:

C. E. BRISTOW, GOVERNMENT PRINTER, NORTH TERRACE.

1908.

Digitized by the Internet Archive
in 2011 with funding from
University of Toronto

http://www.archive.org/details/miningreview08sout

PREFACE.

The decline in the metals market has been severely felt during the six months under review, but there are now signs that the views expressed previously regarding a future satisfactory price for copper will be realised.

Condensed official reports on various properties recently inspected are published in this number as *addenda* to the "Record of Mines," the Fourth Edition of which was issued by the Department in April last.

T. DUFFIELD, *Secretary for Mines.*

August 24th, 1908.

MINERS' RIGHTS AND PRIVILEGES THEREUNDER.

A miner's right is obtainable at the Department of Mines, Adelaide, also at the issuing stations in the various mining districts, at a cost of 5s.

A miner's right is in force for one year from the date of issue, and may be renewed at any time during its currency for another term of one year on payment of 5s.

The holder of a miner's right is authorised to prospect on any mineral lands for any metal, mineral, coal, or oil, and to peg out (of the prescribed shape and dimensions) gold, mineral, coal, and oil claims, and also leases of a like nature.

AREAS AND WORKING CONDITIONS.

GOLD LEASES—Maximum area, 20 acres; working conditions, one man to every five acres.

MINERAL LEASES—40 acres; one man to every 10 acres.

MISCELLANEOUS LEASES—

Salt	640 acres;	special conditions.
Gypsum	640 "	one man to every 40 acres.
Mining Works	10 "	one man.
COAL OR OIL LEASES	640 "	one man to every 40 acres.
GOLD DREDGING LEASES	200 "	special conditions.
MINERAL CLAIMS	40 "	
GOLD CLAIMS	30ft. x 30ft., alluvial; 100ft. x 600ft., reef.	

Gold claims must be constantly worked—one man for each claim—and mineral claimholders must employ two men for each claim. Amalgamation of either gold or mineral claims reduces the labor conditions by one-half.

Gold, mineral, coal, and oil leases are granted for a term of 42 years—the two former at a rental of 1s. per acre per annum and a royalty of 6d. in the pound on net profits, the latter at a rental of 6d. per acre per annum until coal or oil is found in payable quantities, when 1s. per acre is payable and a royalty of 6d. in the pound on the net profits.

The Minister may permit, for the concentration of labor, of the amalgamation of not more than four adjoining gold or mineral leases.

Any number of gold, mineral, coal, or oil leases may be held by one person.

Licences to search for twelve months for precious stones, mineral phosphates, oil, rare metals, minerals, and earths are issued on specific mineral lands, not exceeding five square miles in area for one person, a fee of 20s. being charged for each square mile or portion thereof. These licences give a preferential right to a lease over a portion of the area, as prescribed.

MINING OPERATIONS DURING THE HALF-YEAR ENDED JUNE 30TH, 1908.

AREA AT PRESENT HELD UNDER MINING ACTS (JUNE 30TH, 1908).

Nature of Holding.	Number.	Area.
Mineral leases	347	17,277 acres
Gold leases	92	1,714 "
Gold dredging leases	29	4,617 "
Miscellaneous leases	38	6,695 "
Mineral claims	456	15,048 "
Occupation licences	246	119 "
Search licences	67	48,400 "
Coal and oil claims	5	1,721 "
Total holdings	1,280	95,591 acres

REGISTERED FROM JULY 1ST, 1907, TO JUNE 30TH, 1908.

Mineral claims	271	9,165 acres
Gold leases	15	300 "
Mineral leases	38	1,510 "
Miscellaneous leases	5	149 "
Miners' rights	1,039	—
Search licences	67	54,400 "
Coal and oil claims	5	1,721 "
Total	1,440	67,245 acres

MEN EMPLOYED.

The number of men employed in mining and mineral works during 1907-8 was—

Copper	4,500
Gold	900
Salt	450
Silver-lead	45
Other minerals	550
Total	6,445

REPORTS.

PROPERTIES REPORTED ON DURING SIX MONTHS ENDED JUNE 30TH, 1908.

By the Government Geologist (H. Y. L. Brown).

Geological Reconnaissance from Van Diemen Gulf to the McArthur River, &c., Northern Territory. Reports on various coal mines in New South Wales, and selection of a property there over which this State now holds an option. Left Adelaide for the Northern Territory June 3rd.

By the Chief Inspector of Mines (W. H. Matthews).

Reports on various coal mines in New South Wales.

Mount Malvern | Paringa and West Kanmantoo

And various suburban quarries.

By the Inspector of Mines (H. Jones).

Gordon Reward
Currency Creek
Parara
Phosphate (Hundred Reynolds)
Mount Grainger
Dustholes
Pioneer Gold Mine
Wood's Mine
Wheal Ellen
Hooper Bros.' Copper Show (Waukaringa)
Medora
Oodlawirra Ochre

And inspections under Part XI. of the regulations under the Mining Act.

GENERAL NOTES.

The total value of the mineral production of the State for the six months may be estimated at £216,000.

The average price of standard copper for the six months was £59 0s. 9d. per ton; the highest figure reached being £64 7s. 6d. on January 16th, and the lowest £56 7s. 6d. on June 30th.

After the severe slump of October last, when the metal fell to £55 17s. 6d., the last half year closed with a quotation of £61 7s. 6d. on December 31st. The rise which took place in January was not maintained, and the ebb period in the metal market is lasting longer than was anticipated and hoped.

Mining matters in this State, where copper is the main mineral product, have, of course, been much depressed. In many cases shows have been abandoned; in other cases promising mines have suspended working for the present, and in others operations have been much curtailed.

Returns from the Wallaroo and Moonta Mines for this period, compared with those of the previous six months, illustrate the effects of the fall in the market very clearly:—

	Tons.
Ore raised, July-December, 1907	105,250
" January-June, 1908	65,390
Ore treated, July-December, 1907	102,746
" January-June, 1908	61,090
Copper obtained, July-December, 1907	3,191
" January-June, 1908	2,115
	£
Approximate value, July-December, 1907	226,375
" " January-June, 1908	124,864

The following extract from a speech recently delivered by Mr. G. D. Delprat, General Manager for the Broken Hill Proprietary Company, is full of interest to mining men at the present juncture, and will doubtless be received with the consideration and respect due to such an eminent authority:—

"At this extremity of the commercial world it is impossible to form any forecast of value. We know too little here of all the forces at work either to improve the markets or further depress them. . . . But as sure as there is an ebb and flow so sure is the turn in the tide of prosperity to come again, and the greater the depth of depression the greater will be the height of the following wave of prosperity. I mention these well-known facts because some people when things look bad lose sight of these facts and lose heart in consequence. There is no need for this. It requires patience to wait and backbone to stand the extra strain in avoiding being swept away by the receding tide, so that the oncoming wave of prosperity may find

us fully prepared to take full advantage of it. When this time may come nobody seems to know, but from opinions expressed by people who are in a position to know it does not seem as if there were any reason to expect any revival before the Presidential election in the United States is passed. For just as the first signs of distress came from the United States, so do I expect that the first signs of renewed prosperity will come from there."

The Union and the Lyndhurst, English copper companies, whose holdings are situated at Yudnamutana, have carried on a certain amount of developmental work during the six months, and material is being carted for the erection of a smelter, the site of which, it is stated, will be near the old Yudnamutana Mine.

Operations at Mutooroo consisted of bailing and leaching the mine water, tributing by 18 men, and diamond drilling to a depth of 472ft. In the bore the sulphide lode, 2ft. 6in. thick, was cut at 437ft., and the lode formation was met again at 459ft. 1ft. thick. The bottom of the borehole was in diorite.

At the Paringa and West Kanmantoo, near Callington, work has steadily progressed. The old engine shaft on the Paringa has been reinstated, and at the 240ft. level crosscutting and driving on the Giant's Grave and Allan's lodes has been done; 50 tons of lode material were raised, and 26 tons, averaging 8½ per cent. copper, were treated. A report by the Chief Inspector of Mines will be found on page 19, and the Government are assisting the company to carry out his recommendations.

The option over the Burra Mine has not been exercised, and no work is in progress there at present.

At Kapunda the company formed to work the mine has ceased operations for the present, and some tributers are now raising ore.

At the Hamley 1,681 tons of crude ore were treated, giving 243 tons of concentrates, from which 35 tons 2cwts. of copper were obtained.

Paull's Consolidated has been worked by a party of tributers, and 14 tons 5cwts. of copper obtained.

The well-known Wheal Ellen Mine (see official reports, page 25,) has been taken over by the Commonwealth Silver-Lead Company, Limited, of Sydney, the local representative of the directorate being the Hon. Sir J. Lancelot Stirling. Operations will, in the first instance, it is proposed, consist of exploring and prospecting the lode of auriferous gossan which exists in the northern portion of the property. Fine returns were obtained from this mine in the early days, although the smelting appliances were so very defective, as proved by the slag heaps, that there was a serious loss of metal. Cartage must also have been a very heavy item in the expenses of the company working the mine 50 years ago, but now, with improved and economical appliances, and a railway station (Gemmell's) within two miles, the new company should have its enterprise rewarded.

Regarding the Kitticoola (Reedy Creek) Mine: Since the property has been acquired by the Port Lincoln Copper Company from 50 to 70 men have been continuously employed.

Returns show a large amount of work done, both in mining and prospecting; also at the surface in the erection of plant, and give the following information:—The comprehensive sampling of the mine, done before purchase was completed, showed that the average value of the ore at the lower levels was 6dwts. gold per ton and 2¼ per cent. copper, the average thickness of the lode being 5ft. 6in., although at bends or turns it widens out to, in places, 12ft. to 15ft. It was originally intended to confine operations to the southern part of the mine, as it was considered that in the northern end the lode had petered out or come to a dead end and lived only to the south. Explorations made at the north end of the 180ft. level proved, however, that the lode had only been cut off by a horse of mullock, and it has now been opened up for 100ft. beyond this, 4ft. 6in. thick, and giving high assays of free milling gold. This extension of the lode to the northward has also been proved at the 240ft. and 300ft. levels, and therefore there appears to be an unexpected and large body of oxidised ore to work on in addition to the known sulphide bodies in the other portions of the mine. A valuable development has also occurred on the south-west side of the creek, where the lode known as Cullingworth's has been opened up, showing an average width of 5ft., assaying 6dwts. gold per ton. Prospecting work is also in progress on the Cottage lode, situated about a quarter of a mile from the mine.

On the surface the power plant consists of a 20-drive Taylor & Horsefield compressor, the steam being supplied from three multitubular boilers. Fitting shop, assay office, &c., have been erected. It is intended to erect a 20-head battery, and later on the question of a suitable concentrating plant will be considered.

Some attention is being paid to the old Echunga diggings, and three well-known gold mines in the district, viz., the Crystal and the Phœnix, in Long Gully, and the Queen, south from Echunga, have been taken up again recently. In the past they have only been partially prospected, and official reports show that further prospecting is amply justified.

Glenloth battery returns show eight parcels, totalling 260 tons, treated for 162ozs. 14dwts. 20grs. of gold, the ore being worth 44s. per ton. Ninety-one tons of this from the New Glenloth Company's holding, known as Fabian's No. 3, yielded 81ozs. 11dwts. 20grs. of gold. There is a large extent of auriferous country in this district which has so far been only cursorily prospected.

Work was resumed at the Ediacara Silver-lead Mine for a time and 1,204 tons of ore treated, yielding 105 tons 7cwts. 1qr. of lead and bullion.

Small operations have been in progress at Mount Grainger, consisting of clearing out the main shaft and refixing timber, in order to resume sinking; and at the Medora the old underlie shaft has been cleaned out and a drive put in 51ft. along the course of the lode towards the Grainger shaft. The main shaft has been connected with the old underlie at the 114ft. level in the drive going north.

Interesting official reports on these mines will found on page 27.

The shaft at King's Bluff was put down to 540ft., and more water obtained. There are no battery returns for the six months, but alterations have been made at the plant, and crushing was at the point of restarting.

A vertical shaft at Glenloth, subsidised by the Government, is in progress at the Glen Markie, which was originally discovered by J. Williams, one of Mr. Hakendorf's prospectors, and first known as "Williams's Find." The shaft is laid out to cut the lode at a depth of about 150ft. Up to date 575⅕ tons of ore have been treated from this place, yielding 448ozs. 13dwts. 21grs. of gold, battery treatment only. The tailings were paid for at 5dwts. per ton, making a total yield of 594ozs. of gold, or about 1oz. 0dwt. 16grs. per ton.

At Kirkeek's Treasure a drive 11ft. has been made at the bottom of the well, 336ft., and the supply is about 800galls. per diem.

Thirty tons of stone have been crushed, yielding 16ozs. 11dwts. 5grs., or 11dwts. 1gr. per ton, without cyanide treatment.

This good mine is only partially prospected. It has been favorably reported on by the Government Geologist and the Inspector of Mines (*vide* page 225, "Record or Mines"), but, mainly owing to the water difficulty, its existence so far has been a chequered one. The total quantity of ore treated up to date is 2,271 tons 10cwts., which yielded 1,541ozs. 17dwts. of gold—an extraction of 13dwts. 13⅕grs. per ton —worth £3 12s. per ounce, or a total value of £5,548 12s. Out of this total of 2,271½ tons only 485 have been treated by cyanide, and the assay values of the balance of the tailings, viz., 1,786½ tons, is from 5dwts. to 6½dwts. per ton.

A five-head battery was formally started at the Kohinoor Gold Mine, Kangaroo Island, at the end of May, but no crushing was done until after the end of the half year.

About 6,000 tons of phosphate rock were raised, and a fair proportion marketed. It is to be hoped that the local article will steadily grow in favor with the manufacturers, so that the large deposits which exist in this State may be extensively worked and properly utilised. During the six months phosphate has been marketed from the following places:—Wait's, near Hackham; Oliver's, near Noarlunga; Stacey's, near Orroroo; St. John's, St. Kitt's, Dermody's, and Toms's, near Kapunda and Moculta.

Work at the Mount Malvern Silver-Lead Mine has consisted of sinking and timbering the new main shaft to 270ft., erecting winding engine, boiler, &c., and sheds to cover same. A favorable report on this property by the Chief Inspector of Mines will be found on page 19.

Work has been started at the old Moppa diggings, between Kapunda and Greenock, by the Garden Gully Freehold Gold Mining Company, and operations comprise making a dam capable of holding 5,000,000galls, erecting puddler, engine, gas producer, and amalgamating tables, sinking well, driving between shafts, timbering, prospecting, &c. Treatment was delayed, owing to the dry weather, up to June.

The Secretary of the Woodside Gold Mining Syndicate writes—"All work on the Bird-in-Hand and adjoining mines has been suspended for several years. Repeated attempts have been made to raise the necessary capital to work them, but so far without success. Negotiations are, however, now in progress on behalf of London capitalists."

Operations were restarted at the Golden Gate Mine, near Angaston, in March, and it is now known as the "Kalgoorlie Golden Gate." During the four months the new proprietary has been engaged in sinking a new shaft and driving on the lodes, erecting puddling machinery, and putting the mine in working order generally. Fifty tons of lode material have been raised and 31 tons treated, from which was obtained 10ozs. 18dwts. of gold, or 7dwts. per ton.

At the Tarcoola Blocks 242 tons of stone have been crushed for 394ozs. of gold. Exploratory work on the north side of the slide is in progress.

The operations at Dunn's Homeward Bound Mine, near Mannahill, comprise stoping and crushing ore, laying four miles of waterpipes from the Westward Ho to the mine, erecting boiler and pump for same, erecting machinery at the mine, and excavating a tailings pit.

Eight tons 14cwts. 2qrs. of ore treated at the Petersburg Government Battery and Cyanide Plant yielded 27ozs. 19dwts. 1gr. of gold, and 350 tons crushed at the mine battery gave 80ozs. of gold.

COPPER.

AVERAGE MONTHLY PRICE OF COPPER, JANUARY-JUNE, 1908.

	Standard. £	s.	d.		Best Selected. £	s.	d.
January	62	9	9	..	66	13	11
February	59	1	0	..	63	3	9
March	58	15	8	..	62	7	3
April	58	7	8	..	61	18	9
May	57	10	9	..	61	1	8
June	57	19	8	..	61	9	5
Average for the six months	59	0	9	..	62	5	10
RANGE OF PRICES—							
January 16th	64	7	6				
June 30th	56	7	6				

RETURNS FROM GOVERNMENT CRUSHING AND CYANIDING PLANTS FOR THE HALF-YEAR ENDED JUNE 30TH, 1908.

Name of Mine.	Locality.	Ore Treated. Tons	cwts.	qrs.	Total Gold Recovered. Ozs.	dwts.	grs.	Value. £	s.	d.	Average Yield per Ton, in Shillings.
MOUNT TORRENS.—GOVERNMENT BATTERY AND CYANIDE PLANT.											
Mount Torrens	Mount Torrens	85	0	0	1	4	19	4	19	2	1
"	"	5	0	0	0	12	16	1	16	11	7
Vienna	Mount Pleasant	5	3	0	3	9	20	11	16	6	47
Reddaway	Mount Torrens	12	0	0	0	18	3	2	14	7	4
Mount Torrens	"	5	0	0	0	10	0	1	13	4	6
"	"	5	14	0	0	12	12	1	19	4	7
"	"	16	0	0	0	12	0	2	8	0	3
Total		133	17	0	7	9	22	27	7	10	4
Tailings treated by cyanide process (gold previously reported approximately)		46	0	0	10	15	1	30	15	11	—
Grand total since starting of battery		8,989	12	3	5,149	1	0	19,438	14	1	42½

RETURNS FROM GOVERNMENT CRUSHING AND CYANIDING PLANTS—*continued.*

Name of Mine.	Locality.	Ore Treated.	Total Gold Recovered.	Value.	Average Yield per Ton, in Shillings.
		Tons cwts. qrs.	Ozs. dwts. grs.	£ s. d.	
PETERSBURG.—Government Battery and Cyanide Plant.					
Dunn's Hmew'd Bo'nd	Mannahill	6 5 0	24 6 0	94 1 3	304
" " ..	"	2 9 2	3 13 1	14 12 2	119
Klondyke	"	1 1 0	5 12 1	20 6 0	405
Total.....		9 15 2	33 11 2	128 19 11	264
Tailings treated by cyanide process (gold previously reported approximately)..		200 0 0	103 7 3	331 13 10	—
Grand total since starting of battery ..		3,552 14 0	3,109 10 22	11,450 12 9	64½
TARCOOLA.—Government Battery and Cyanide Plant.					
No ore treated during the six months.					
Grand total since starting of battery ..		2,020 0 0	2,463 0 11	8,711 12 10	86
GLENLOTH.—Government Battery.					
No. 8 parcel—	Glen Markie	55 0 0	40 0 10	149 17 11	54½
" 9 "	Grube and Burns.....	37 0 0	8 3 0	25 7 4	13¾
" 10 "	Grube, Burns, and Arnold	13 0 0	4 0 14	15 12 3	24
" 11 "	Collins	14 0 0	5 0 20	16 0 2	23
" 12 "	New Glenloth Co. (Fabian's), No. 3	31 0 0	15 8 20	54 11 1	35
" 13 "	Glen Markie.....	42 0 0	19 1 8	68 16 1	33
" 14 "	Collins	8 10 0	4 16 20	15 15 11	37
" 15 "	New Glenloth Co. (Fabian's), No. 3	60 0 0	66 3 0	229 6 11	76
Total cyanide values of parcels 1 to 7		—	29 11 6	118 6 8	—
Total.....		260 10 0	192 6 12	693 14 2	44
Grand total to June 30th, 1908.....		990 15 0	636 19 18	2,313 3 10	47

The Petersburg and Mount Torrens Battery and Cyanide Works are worked alternately each month. A summary of the work done for the year ending June 30th, 1908, shows that 862 tons of ore, tailings, and concentrates have been treated, the gold resulting, viz., 387ozs. 12dwts. 6grs., valued at £1,322 9s., with the exception of 13ozs. 17dwts. 12grs., which was taken by the owners, was delivered to the Mines Office on June 27th, 1908. Four hundred and forty-six assays and tests of small parcels of ore, not mentioned in foregoing statement, have been made.

RETURNS FROM CRUSHING AND CYANIDING PLANTS (OTHER THAN GOVERNMENT) FOR THE HALF-YEAR ENDED JUNE 30TH, 1908.

Name.	Ore Treated.	Total Gold Recovered.	Value.	Average Yield per Ton, in Shillings.
	Tons cwts. qrs.	Ozs. dwts. grs.	£ s. d.	
KIRKEEK'S TREASURE BATTERY, NILLINGHOO.				
Battery treatment	30 0 0	16 10 0	56 11 0	40
Total	30 0 0	16 10 0	56 11 0	40

RETURNS FROM CRUSHING AND CYANIDING PLANTS, &c.—*continued.*

Name.	Ore Treated.	Total Gold Recovered.	Value.	Average Yield per Ton, in Shillings.
	Tons cwts. qrs.	Ozs. dwts. grs.	£ s. d.	
TARCOOLA BLOCKS COMPANY'S BATTERY AND CYANIDE PLANT.				
Battery treatment	242 0 0	394 0 0	1,484 0 0	122½
Total	242 0 0	394 0 0	1,484 0 0	122½
Grand total since starting of Tarcoola Blocks Company's battery, May 16th, 1901, to June 30th, 1908.....	27,308 0 0	36,994 0 0	114,997 0 0	84
DUNN'S HOMEWARD BOUND BATTERY.				
Battery treatment	350 0 0	80 0 0	295 8 2	17
Total	350 0 0	80 0 0	295 8 2	17

TOTAL BATTERY AND CYANIDE RETURNS FROM ALL PLANTS FOR THE SIX MONTHS ENDED JUNE 30TH, 1908.

†Mt. Torrens Government Plant..	133 17 0	7 9 22	27 7 10	4
‡Petersburg Government Plant ..	9 15 2	33 11 2	128 19 11	264
Glenloth Government Plant	260 10 0	192 6 11	693 14 2	47
*Kirkeek's Treasure Company ..	30 0 0	16 10 0	56 11 0	40
*Tarcoola Blocks Company	242 0 0	394 0 0	1,484 0 0	122½
*Dunn's Homeward Bound Co. ..	350 0 0	80 0 0	295 8 2	17
Total	1,026 2 2	723 17 11	2,686 1 1	52

* Battery treatment only. † Also 46 tons of tailings passed through the cyanide vats.
‡ Also 200 tons of tailings passed through the cyanide vats.

NORTHERN TERRITORY OF SOUTH AUSTRALIA.

ARLTUNGA, MACDONNELL RANGES.

GOVERNMENT BATTERY AND CYANIDE PLANT.

The Macdonnell Ranges, although within the boundaries of the Northern Territory, and coming under the operation of the Northern Territory Mining Act, yet geographically belongs to South Australia proper. All business is done from Adelaide, and the administration of the Mining Act south of the 19th parallel of latitude is conducted by the Hon. Minister controlling the Northern Territory, with the help of a resident warden at Arltunga.

Name.	Ore Treated.	Total Gold Recovered.	Value.	Average Yield per Ton, in Shillings.
	Tons cwts. qrs.	Ozs. dwts. grs.	£ s. d.	
White Range, Excelsior	7 2 0	19 3 11	70 13 1	198
" Associated	8 19 0	12 6 4	47 17 6	107
" Excelsior	8 18 0	17 16 0	64 3 9	144
" "	8 2 0	14 18 8	54 8 8	124
Klondyke	6 14 0	6 18 7	27 11 1	82
Valentine	5 2 0	1 12 2	4 17 0	19
"	9 5 0	2 15 21	7 0 4	15
White Range, Associated.....	9 1 0	14 18 19	50 15 10	111¾
" Luce's	3 17 0	3 6 3	12 3 3	63

ARLTUNGA.—GOVERNMENT BATTERY AND CYANIDE PLANT—*continued.*

Name.	Ore Treated.			Total Gold Recovered.			Value.			Average Yield per Ton, in Shillings.
	Tons	cwts.	qrs.	Ozs.	dwts.	grs.	£	s.	d.	
White Range, East	4	2	0	2	8	17	8	8	2	40½
" Great Western	6	7	0	4	6	19	17	3	8	54
" Excelsior	20	14	0	50	1	2	183	5	1	177
" Luce's	9	5	0	11	13	9	44	0	6	95
" "	13	4	0	21	17	20	81	17	7	124
" Extended	7	7	0	7	11	10	24	4	1	66
" Excelsior	8	6	0	7	17	16	27	15	5	67
Macdonnell Range	6	12	0	8	19	4	29	17	0	90
White Range, Excelsior	7	1	0	14	13	16	56	3	5	160
" "	7	12	0	7	4	5	25	14	7	67
" Luce's	3	17	0	5	4	21	19	5	5	100
" Excelsior	11	9	0	21	11	6	76	11	3	133
" "	9	19	0	10	5	5	32	17	6	66
Venture	20	15	0	11	16	1	42	12	8	41
White Range, Great Western	2	16	0	3	13	9	13	4	3	94
" Associated	9	15	0	10	19	3	41	13	3	87
" East	6	9	0	6	16	22	24	2	10	75
" Excelsior	4	14	0	6	8	15	22	19	9	100
" "	9	19	0	11	6	21	42	19	1	86
Venture	15	4	0	6	5	12	22	5	6	29
White Range, Excelsior	6	3	0	6	5	19	22	10	8	66
" "	7	11	0	10	12	4	39	11	0	105
" "	5	12	0	7	7	21	28	3	1	100
" "	6	0	0	9	3	0	33	18	7	113
Round Hill	8	5	0	11	14	16	45	4	1	110
Magdala	5	6	0	4	14	18	17	15	6	60
White Range, Luce's	4	10	0	4	11	18	17	9	3	77
" Extended	6	14	0	4	16	1	17	4	7	52
" East	2	19	0	5	13	7	21	7	5	140
" Luce's	7	9	0	7	2	7	26	12	5	70
Total	312	16	0	396	18	21	1,446	17	6	92
Grand total since starting of battery to June 30th, 1908	9,452	2	3	11,671	5	5	43,391	1	7	92

The battery at Winnecke's Depôt has been taken over by the Government, and the following parcels have been treated at it by the manager of the Arltunga Works:—

Coronation	12	0	0	7	19	18	28	4	8	47
Reward	35	0	0	27	9	7	104	19	11	60
Coorong	50	0	0	15	10	2	60	17	2	24⅓
Junction (bulk test from outcrop)	12	0	0	0	12	21	2	7	1	4
Total	109	0	0	51	12	0	196	8	10	36

GOVERNMENT BORING OPERATIONS.

No. 1 Government drill is still employed in boring on the Crown lands upon which is situated the Wandilta Copper Mine; the total amount of boring done during the period was 1,188ft., and 192ft. of reaming; also the plant was taken down at No. 4 site, shifted to No. 5 site, and re-erected there.

The last "Review" contains particulars of No. 4 bore to 410ft.

No. 4 bore (completion).

Details of Bore.

410ft. to 516ft.	Country rock mixed with calcite
516ft. to 598ft.	Calcite and felspar lode formation, showing a little sulphide
598ft. to 630ft.	Country rock
630ft. to 635ft.	Lode formation, the first 8in. showing sulphide freely
635ft. to 793ft.	Country rock

No. 5 (in progress)—Situated between No. 1 and No. 2 bores, and laid out to cut the old line of lode between 1,400ft. and 1,500ft. Angle of bore, 87° 30′. Diameters of bore—Surface to 119ft., 3½in.; 119ft. to 517ft., 2⅝in.; 517ft. to 806ft., 1¾in.

Details of Bore.

Surface to 79ft.	Broken sandstone
to 92ft.	Blue country rock
to 210ft.	Formation consisting of calcite, with quartz and ironstone leaders, showing splashes of green and blue carbonates
to 246ft. 5in.	Country rock
to 251ft. 5in.	Calcite and quartz lode formation, the last 1ft. showing good sulphide
to 292ft. 5in.	Country rock
to 293ft. 1in.	Lode showing good sulphide. Assays, 6·6 per cent., 1·1 per cent., 13·4 per cent. copper
to 319ft.	Country rock. Assay, 313ft. to 315ft., 2·7 per cent. copper
to 353ft.	Large sulphide lode formation. Samples taken at every foot, and assays ranged from ·5 per cent. to 4·5 per cent. copper and from trace to ·1dwt. gold per ton
to 358ft.	Country rock
to 358ft. 2in.	Vein of sulphide, assaying 9dwts. gold per ton and 2·8 per cent. copper
to 369ft.	Country rock
to 370ft.	Calcite
to 371ft.	Country rock
to 373ft.	Sulphide
to 389ft.	Country rock
to 389ft. 6in.	Calcite, showing sulphide
to 399ft.	Country rock
to 410ft.	Country rock, heavily charged with magnetic iron
to 416ft. 4in.	Country rock. Assays, 1dwt. gold per ton, 2·7 per cent. copper; ½dwt. gold per ton, 2 per cent. copper
to 419ft.	Calcite, 18in. showing good sulphide
to 437ft. 3in.	Country rock
to 442ft. 2in.	Lode showing sulphide and iron pyrites
to 507ft.	Country rock
to 511ft.	Calcite, showing a little sulphide
to 740ft.	Country rock
to 806ft.	Felspar formation, mixed with quartz and calcite veins, carrying a little sulphide

This further boring at Wandilta may be regarded as very satisfactory. In No. 5 bore an entirely new copper-bearing belt was encountered; for 34ft. the drill was in one lode formation, and four smaller ones were passed through in lengths of core from 1ft. to 5ft.

No. 2 Government drill, working at Noarlunga on behalf of the Noarlunga Coal Company.

As shown in the previous "Review," No. 3 bore had reached a depth of 810ft. 4in. No further work was done here, and the plant was removed to a site selected by the company on section No. 80, hundred of Willunga, about 54ft. north-east of the original workings, where the coal was first discovered, and about a mile from No. 3 bore.

No. 4 bore.—Site as above. Vertical bore—depth, 340ft. Diameters of bore—Surface to 200ft., 7⅛in.; 200ft. to 340ft., 5$\frac{9}{16}$in. Calyx bit.

Details of Bore.

Surface to 26ft.	Yellow sandstone, with bands of clay
to 28ft.	Shale and fine sand
to 32ft.	Seam of brown coal
to 34ft.	Brown sandstone

Details of Bore—continued.

34ft. to 44ft.	White sand	162ft. to 168ft	Light red sandstone
44ft. to 55ft.	White clay	168ft to 170ft.	Red clay
55ft. to 89ft.	White sandstone and clay, showing pyrites	170ft. to 171ft.	Hard red sandstone
89ft. to 119ft.	Yellow clay and sand	171ft. to 179ft.	Red clay
119ft. to 135ft.	Light red clay	179ft. to 205ft. 10in.	Red sandstone and clay
135ft. to 138ft.	Yellow clay	205ft. 10in. to 246ft. 10in.	Red sandstode, with a little clay
138ft. to 140ft.	Brown sand and clay	246ft. 10in. to 275ft. 8in.	Soft red sandstone
140ft. to 144ft.	Yellow clay	275ft. 8in. to 291ft. 2in.	Brown sandstone and pebbles
144ft. to 145ft.	Fine brown sandstone	291ft. 2in. to 298ft. 2in.	Light red sandstone
145ft. to 162ft.	Yellow clay and fine sand	298ft. 2in. to 340ft.	Country rock

The company then applied to the Government for assistance, and, this being granted, it was decided to remove the plant to section No. 322, hundred of Willunga, and bore at a site selected by the Government Geologist, where core of better quality and in thicker seam may perhaps be found.

No. 5 bore.—Situated about two miles from No. 4 bore and about half a mile from Port Noarlunga. Vertical bore, in progress. Diameter of bore, 7⅛in. Calyx bit.

Details of Bore.

Surface to 1ft.	Soil	28ft. to 45ft.	Pebbly formation
1ft. to 2ft.	Limestone	45ft. to 53ft.	Boulders
2ft. to 14ft.	Marl	53ft. to 88ft. 6in.	Fossiliferous limestone
14ft. to 20ft.	Clay	88ft. 6in. to 91ft. 10in.	Hard ironstone conglomerate
20ft. to 28ft.	Drift sand		

INSPECTION OF QUARRIES.

In consequence of the appalling frequency of serious accidents occurring at quarries the Legislature passed an Act, No. 858 of 1904, bringing quarries in the same category as mines as regards the controlling hand of the Inspector of Mines. Where necessary, quarries have been visited by the Chief Inspector (Mr. W. H. Matthews) who, in some cases, found additional precautionary measures necessary. His requisitions in this respect have in all cases been complied with.

SUBSIDIES.

The Legislature provided in the Mining Act, 1893, and in previous measures for the encouragement of mining.

The following schedule shows what subsidies have been paid from the inception of the system to June 30th, 1908, and the sums repaid. In the ordinary way these repayments are made from profits—50 per cent. of such profits being devoted to repayments. In two instances only have the profits won enabled full repayment to be accomplished—the Crystal Mine, at Echunga, which repaid £76 7s. 6d. from that

source, and the once-famous New Alma and Victoria Mine, Waukaringa, which repaid in full the first subsidy, £3,000. The remainder of the recoveries was derived from sales of mining plant held as security. The total subsidies advanced is £43,417 12s. 8d., of which £6,055 12s. 6d. has been recovered, leaving a debit balance of £37,362 0s. 2d. Portion of this outstanding debt is represented by machinery that has fallen into the hands of the Government; add to this the value of the metals won, and the State in general will probably have benefited beyond the money value of the debit balance.

ENCOURAGEMENT OF MINING.—STATEMENT OF SUBSIDIES PAID FROM COMMENCEMENT TO JUNE 30TH, 1908.

Locality.	Name of Company or Person to whom Subsidy Granted.	Amount Advanced.			Amount Repaid.		
		£	s.	d.	£	s.	d.
Algebuckina	Algebuckina Gold Mining Syndicate	52	10	11	52	10	11
Barossa	Barossa Enterprise Gold Mining Co.	232	2	6	—		
"	Enterprise Copper Mining Co., N.L.	150	0	0	—		
"	Enterprise Excelsior (Barossa Amalgamated)	2,000	0	0	—		
"	Lady Alice Gold Mining Co.	1,797	2	3	—		
"	Victoria Hill Amalgamated Gold Mining Syn.	38	12	6	—		
Bimbowrie	Mount Victoria Mine	50	0	0	—		
Blackwood	Mount Malvern Silver Mining Co.	491	3	6	—		
Blinman	Nilpena Copper Mining Co., Ltd.	290	5	3	—		
Burr Well	Paull's Consolidated Copper Propy., N.L.	525	0	0	—		
Callington	Callington Copper Mining Co.	148	8	7	—		
"	Paringa Mining Syndicate	399	16	8	244	0	0
"	Pioneer Gold and Copper Mining Syndicate	95	15	6	—		
Clarendon	Mount Malvern Silver-lead Mining Co., N.L.	724	11	8	—		
Currency Creek	Currency Creek Copper Mining Co.	28	6	5	—		
Echunga	Crystal Gold Mining Co.	563	17	6	176	7	6
"	Wolters, F. C. & Co.	25	0	0	—		
"	Echunga Proprietary Hydraulic Gold Sluicing Co., N.L.	500	0	0	—		
Ediacara	Ediacara Consols Silver Mining Co., N.L.	651	12	1	375	17	0
Farina	Warra Warra Propy. Copper Mines, N.L.	322	4	11	322	4	11
Fifth Creek	Fifth Creek Central Silver and Copper Mining Co., N.L.	253	2	4	—		
"	Stainbank, A. T.	70	14	11	—		
Fortress Hill	Fortress Hill Mining Syndicate	60	0	0	—		
Glenloth	Glenloth Mining, Battery, & Options Co., N.L.	515	4	7	515	4	7
"	Glenloth Wells Pioneer Blocks Co., Ltd.	100	0	0	22	18	5
Glen Osmond	Eagle Silver Mining Co, Ltd.	500	0	0	—		
Gumeracha	Gumeracha Gold Mining Syndicate	75	0	0	—		
"	Watt's Gully Gold Mining Co.	50	0	0	—		
"	Watt's Gully Reef Claims	50	0	0	—		
Hahndorf (near)	Mount Pangoen's Gold Mining Co.	56	1	4	—		
Kadina	Copper Hill Mining Co., N.L.	391	15	6	—		
Kangaroo Island	Kohinoor Gold Mining Co., N.L.	137	17	0	—		
"	Kohinoor Mine (H. G. Taylor)	162	3	0	—		
Kuitpo, Hundred of	Blackfellow's Creek Gold Mining Co., Ltd.	660	6	7	35	0	0
"	McMurtie's Claims	199	19	11	—		
"	Mount Monster Gold Mining Syndicate	350	0	0	—		
Leigh's Creek	Leigh's Creek South Coal Mining Co., N.L.	95	16	4	95	16	4
Maitland	Parara Mining Co., N.L.	283	3	0	—		
Mannahill	Royal Charlie Gold Mining Co.	153	18	5	—		
"	Victoria Tower Mining Co., N.L.	345	18	9	90	0	0
"	Westward Ho Mine (Dr. H. Dixon)	1,000	0	0	—		
Mount Fitton	Northern Mining and Smelting Co., N.L.	350	0	0	—		
Mount Grainger	Ireby Gold Mining Syndicate	35	4	3	—		
"	Mt. Grainger Ironclad Gold Mining Syn., Ltd.	21	18	10	—		
"	Heithersay, J., Mt. Grainger Medora Mines	63	5	1	—		
"	New Mount Grainger Gold Mines, N.L.	393	7	1	220	0	0
Mount Pleasant	Duke of Cornwall Gold Mining Syndicate	458	17	4	38	5	0
Mount Torrens	Mount Torrens Gold Mining Co.	1,000	0	0	—		
Musgrave Ranges	Musgrave Ranges Prospecting Association	47	2	0	—		
Mutooroo	Mutooroo Copper and Silver Mining Co., Ltd.	500	0	0	500	0	0
Myponga	Wohler, H., & Co.	20	0	0	—		

(2) KITTICOOLA (REEDY CREEK) MINE.

(3) KITTICOOLA (REEDY CREEK) MINE.

ENCOURAGEMENT OF MINING.—STATEMENT OF SUBSIDIES PAID—*continued.*

Locality.	Name of Company or Person to whom Subsidy Granted.	Amount Advanced.			Amount Repaid.		
		£	s.	d.	£	s.	d.
Nackara	Nackara Proprietary Copper Mining Co , N.L.	100	0	0	—		
"	Nackara Proprietary Gold Mining Syndicate	100	0	0	—		
Nairne	New Banksia Gold Mining Syndicate	250	0	0	—		
"	North Nairne Gold Mining Co.	500	0	0	—		
New Luxemburg	Mingary Gold Mining Co.	650	0	0	—		
"	Queen Bee Mining Co., N.L.	250	0	0	250	0	0
Olary	King's Bluff G.M. Co., N.L.	115	15	2	—		
Palmer (near)	Bevilaqua & Angel	57	18	0	—		
Port Lincoln	Lady Franklin Syndicate	200	0	0	40	0	0
Prospecting in north-west of State	North-West and West Australian Pros. Co.	104	9	7	—		
Prospecting on proposed line to Queensl'd Border	Wheal Turner Copper Mining Co., Ltd.	1,000	0	0	—		
Quorn	Quorn Manganese and Silver Mining Co.	10	9	10	—		
Sliding Rock	Sliding Rock Copper Proprietary, N.L.	2,000	0	0	5	12	0
Tarcoola	North-West Prospecting Association, N.L.	150	0	0	—		
"	Tarcoola Blocks Gold Mining Co., Ltd.	3,000	0	0	—		
"	Tarcoola Enterprise Gold Mining Co., N.L.	100	0	0	19	10	4
"	Tarcoola Proprietary Gold Mines, N.L.	150	4	4	9	15	0
Teatree Gully	Teatree Gully Gold Mining and Pros. Assn.	234	5	7	—		
Teetulpa	Great Ironclad Gold Mining Co.	218	6	9	—		
"	Morning Star Gold Mining Co.	68	4	6	—		
"	Nil Desperandum Teetulpa Devt. Co., N.L.	64	14	1	20	5	6
"	Teetulpa Mining and Crushing Co.	349	11	4	—		
"	Teetulpa Prospecting Syndicate	49	15	6	—		
"	Teetulpa Prospecting Association	14	7	3	—		
Wadnaminga	Countess of Jersey Gold Mining Co., N.L.	321	0	0	—		
Wallaroo	Yelta New Copper Mining Co , N.L.	1,000	0	0	—		
Waukaringa	Alma Extended Gold Mining Co.	3,000	0	0	22	5	0
"	Kirkeek's Treasure Gold Mining Co.	662	3	1	—		
"	New Ajax Consolidated Gold Mining Co., N.L.	750	0	0	—		
"	Rees, R., Ajax Mine	50	0	0	—		
"	New Alma and Victoria Gold Mining Co., Ltd.	3,000	0	0	3,000	0	0
Winnininnie	Winnininnie Gold & Silver Propy. Co., N.L.	86	3	6	—		
Wonna	Golden Point Claims	50	0	0	—		
Woodside	Bird-in-Hand Gold Mining Co , Ltd.	3,000	0	0	—		
"	Eureka Gold Mining Co., Ltd.	1,500	0	0	—		
"	New Era Gold Mining Co , Ltd.	1,000	0	0	—		
"	Woodside Boring and Mining Syndicate	422	17	11	—		
Worturpa	Backhouse, T. S.	100	0	0	—		
"	Worturpa Exploration and Mining Co., Ltd.	800	0	0	—		
	Totals £	43,417	12	8	6,055	12	6

ASSAYS AT SCHOOL OF MINES.

NUMBER OF ASSAYS MADE FOR PUBLIC PURPOSES AT THE SCHOOL OF MINES DURING THE SIX MONTHS ENDED JUNE 30TH, 1908.

	1908						Totals.
	January.	February.	March.	April.	May.	June.	
Assays for the Warden of Goldfields	101	133	8	50	155	12	459
Assays for the Government Geologist	1	3	5	2	—	—	11
Assays for other Government departments	-	—	—	—	—	—	—
Free public assays	94	152	144	119	87	98	694
Totals	196	288	157	171	242	110	1,164

DECENNIAL RETURN SHOWING OUTPUT AND VALUE OF VARIOUS METALS AND MINERALS PRODUCED IN SOUTH AUSTRALIA SO FAR AS CAN BE ASCERTAINED.

Year.	Gold.		Silver.		Silver Lead Ore.		Copper.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Ounces.	£	Ounces.	£	Tons.	£	Cwts.	£
1898	2,798	10,676	—	—	183	950	95,414	244,865
1899	3,893	15,582	—	—	—	—	109,912	406,208
1900	3,721	14,494	—	—	—	17,526	97,727	371,920
1901	4,918	16,613	—	—	1,410	11,357	134,719	468,606
1902	7,231	24,878	—	—	2,680	19,740	136,937	388,162
1903	8,650	28,650	7,986	804	211	1,267	129,812	417,116
1904	17,897	76,025	—	—	—	—	125,560	382,356
1905	10,983	45,853	—	—	—	—	130,959	426,511
1906	8,037	27,000	801	104	—	—	164,160	718,609
1907	5,609	20,540	5,845	780	1,000	11,000	158,620	690,000
Totals....	—	280,311	—	1,688	—	61,840	—	4,514,353

Year.	Copper Ore and Regulus.		Lead.		Ironstone Flux.		Limestone Flux.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Cwts.	£	Tons.	£	Tons.	£
1898	536	3,992	6,316	3,806	—	—	—	—
1899	2,892	24,682	7,282	3,782	—	—	—	—
1900	2,367	22,526	7,650	4,382	—	—	—	—
1901	1,866	23,011	1,360	722	—	—	—	—
1902	2,579	42,550	43,507	22,303	—	—	—	—
1903	7,069	54,922	14,408	8,799	84,932	46,712	—	—
1904	3,051	24,597	—	—	46,687	27,091	43,440	6,516
1905	2,563	28,434	1,040	369	84,483	48,577	44,498	4,791
1906	—	—	1,000	550	75,226	33,852	31,940	4,791
1907	—	—	—	—	84,600	38,100	31,100	5,800
Totals	—	224,715	—	44,713	—	194,332	—	21,898

Year.	Phosphate Rock.		Crude Salt.		Other Metals and Minerals.	Total Value.
	Quantity.	Value.	Quantity.	Value.	Value.	
	Tons.	£	Tons.	£	£	£
1898.....	—	—	—	—	560	264,849
1899.....	—	—	—	—	1,357	451,611
1900.....	—	—	—	—	411	431,259
1901.....	—	—	—	—	2,219	522,478
1902.....	—	—	—	—	742	498,375
1903.....	1,000	1,000	40,000	12,000	100	571,371
1904.....	3,000	3,000	40,000	12,000	198	531,783
1905.....	5,000	5,000	32,500	13,000	1,261	573,796
1906.....	5,850	5,850	55,000	27,500	2,209	820,465
1907.....	8,000	8,000	75,000	37,500	2,500	814,220
Totals	—	22,850	—	102,000	11,507	4,480,213

CHINERY AND PLANTS.

spector of Mines (Mr. W. H. Matthews), will be found of interest:—

Mining Machinery.				Classifiers.		Furnaces.			Tramways.								
Hoisting Gear. Single.	Steam Pumps.	Cornish Pumps.	Automatic Battery Feeders.	Spitzensters.	Kimes.	Calciners.	Cupelling.	Refining.	Number.	Length in Yards.	Cyanide Vats.	Sawmills.	Slime Treatment Plants.	Reservoirs.	Electric Light Plants.	Telephone Lines, in Miles.	Approximate Value.
																	£
7	31	6	—	6	—	46	—*	3	—§	58,736	—	4	4	9	3	12	271,981
—	4	2	—	1	—	—	—†	1	1	3,520	—	—	—	—	—	4	16,647
2	—	2	—	—	—	—	—	—	6	620	—	—	—	—	—	—	3,000
—	2	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	1,250
—	1	1	—	—	—	—	—	—	1	400	1	—	—	2	—	—	6,000
—	6	—	—	—	—	1	—	—	2	—	—	—	—	—	—	—	8,500
1	9	—	—	—	—	—	—	2	1	1,000	6	1	2	1	1	—	4,000
—	—	—	—	—	—	—	—	—	1	35 mls	—	—	—	2	—	35	76,060
—	—	—	—	—	—	5	8	31	5	3½ mls	—	1	—	—	3	2	157,114
1	2	—	—	—	—	—	—	—	7	200	10	—	1	7	—	—	4,685
1	4	1	—	—	—	—	2	3	4	397	9	—	—	—	—	—	2,756
—	4	—	—	—	—	—	1	2	3	88	7	—	2	—	—	—	4,930
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
—	—	—	—	—	—	—	—‡	—	—	—	—	—	—	—	—	—	1,000
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	750
—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,000
—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	401
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,600
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,000
																	574,074

§ Continuous.

MINING MACHINERY AND PLANTS.

The following return, prepared by the Chief Inspector of Mines (Mr. W. H. Matthews), will be found of interest:—

Name of Mine	Locality.	Owner.	Steam Engines.				Reducing Machinery.										Concentrators.					Mining Machinery.					Classifiers.		Furnaces.			Tramways.							Approximate Value.
			Crushing.		Winding, &c.		Stamp Heads.															Winding Gear.																
			Number.	Horse Power.	Number.	Horse Power.	Number.	Weight.	Berdans.	Wheeler Pans.	Settlers.	Amalgamators.	Stonebreakers.	Huntingdon Mills.	Bryart Roller Mills.	Cornish Rolls.	Frue Vanners.	Shakers.	Buddles.	Jiggers.	Willfrey Tables.	Double.	Single.	Steam Pumps.	Cornish Pumps.	Automatic Battery Feeders.	Spitzcasters.	Kimes.	Calciners.	Cupelling.	Refining.	Number.	Length in Yards.	Cyanide Vats.	Sawmills.	Slime Treatment Plants.	Reservoirs.	Electric Light Plants.	Telephone Lines, in Miles.	
				N H P		N H P																																£
Wallaroo and Moonta	Hundred of Wallaroo	The Wallaroo & Moonta Mng. & Smltg. Co., Ltd	8	228	25	1807	—	—	—	—	—	—	13	—	—	10	—	—	23	6	1	8	7	31	6	—	6	—	46	—*	3	—§	58,736	—	4	4	5	3	12	271,582
Paramatta Copper ..	Hundred of Wallaroo	Paramatta Copper Mines, Limited	1	48	2	100	—	—	—	—	—	—	1	—	—	1	—	—	—	1	5	—	—	4	2	—	1	—	—	—†	1	1	3,520	—	—	—	—	—	4	16,647
Hamley	Hundreds of Wallaroo and Tiparra	Hamley Mining Co., Ltd.	1	50	2	42	—	—	—	—	—	—	1	—	—	1	—	—	3	1	—	—	2	—	2	—	—	—	—	—	6	620	—	—	—	—	—	—	3,000
The Blinman	Blinman	The Tasmanian Copper Company, Limited	—	—	2	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	2	—	—	1,500
Ajax	Waukaringa	Rees, James, & Deeble	1	20	1	14	10	750lbs.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—	—	1	400	1	—	—	2	—	—	6,000
Glamorgan Gold .... (Alma Extended)	Waukaringa	S.A. Government	1	55	1	25	10	each 9cwts.	—	8	—	—	1	—	—	—	—	—	—	—	—	1	—	6	—	—	—	1	—	—	2	—	—	—	—	—	—	5,000
Tarcoola Blocks	Tarcoola	Tarcoola Blocks Gold Mining Co., Ltd.	1	25	2	23	20	900lbs.	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1	9	—	—	—	—	—	2	1	1,000	6	‖	2	1	1		4,000
Iron Knob	Iron Knob	The Broken Hill Proprietary Co., Ltd.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	35 mls	—	—	—	2	—	35	76,000
Smelting Works	Port Pirie	Do.	5	185	16	1152	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	5	8	31	5	3½ mls	—	1	—	—	3	2	157,714
Government Battery and Cyanide Works	Petersburg	S.A. Government	2	20	—	—	10	each 850lbs.	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	2	—	—	—	—	—	—	7	200	10	—	1	7	—	—	4,685
	Mount Torrens	Do.	1	22	2	33	10	each 7cwts.	—	—	5	—	2	—	—	—	1	—	—	—	—	1	1	4	1	—	—	—	—	2	3	4	347	9	—	—	—	—	2,705
	Tarcoola	Do.	1	14	2	10	10	each 650lbs.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	1	2	3	88	7	—	2	—	—	—	4,920
Mount Gunson	Pernatty Lagoon	Mt. Gunson Proprietary Mining Co., N.L.	—	—	—	—	—	—	—	—	—	—	1	—	—	2	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
Mount Rose	Near Mount Rose	Northern Mng. & Smltg. Co.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—‡	—	—	—	—	—	—	—	—	—	1,000
Copper Hill	Kadina	S.A Government	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	750
Sliding Rock.....	Sliding Rock	Do.	2	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5,000
Homeward Bound ..	Mannahill	Do.	1	18	—	—	10	each 7cwts.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
Enterprise	Hundred of Barossa	Do.	—	—	1	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
Westward Ho.	Mannahill	—	1	15	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	500
Bird-in-Hand	Hund. Onkaparinga	—	1	30	1	30	20	each 7cwts.	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
Ediacara Silver	Near Beltana	—	—	—	1	14	—	—	—	—	—	—	1	—	—	1	—	—	—	1	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	400
Mount Grainger	Mount Grainger	S.A. Government	1	15	—	—	15	each 7cwts.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,000
Kirkeek's Treasure ..	Nillinghoo	Do.	1	25	—	—	10	each 9cwts.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,000
Glenloth	Glenloth	Do.	1	14	—	—	5	each 9cwts.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,000
																																						374,074

* Ten reducers, 12 roasters, and two blast furnaces. † One 70-ton 24-hour blast matting furnace. ‡ One reverberatory furnace. § Continuous.

REPORTS FORMING ADDENDA TO THE "RECORD OF MINES."

By the Chief Inspector of Mines (W. H. Matthews).

Mount Malvern Silver-Lead Company (*vide* page 183, Record).—A large amount of substantial developmental work has been done by the present company. A main vertical shaft, 9ft. 6in. by 4ft. in the clear, has been sunk to a depth of 237ft., close timbered with 2in. sawn timber, and centered in three compartments. From the 119ft. level a crosscut had been driven 68ft., where it disclosed the lode formation from 6ft. to 7ft. wide, containing throughout more or less splashes and veins of galena, one portion, from 12ft. to 15ft. thick, being exceedingly good ore, a sample taken returning 12ozs. 16dwts. silver per ton and 54 per cent. lead; this has every appearance of being a separate shoot of ore making W. of the crosscut, and indications point that when driven on W. a much larger quantity of high-grade ore will be exposed. From the crosscut a drive has been made 40ft. E. towards the old workings and the main shoot of ore worked by the previous company; two samples from the drive gave, on assay, 3ozs. and 7ozs. of silver per ton and 7 per cent. and 29 per cent. of lead respectively. The prospects should improve, and, when connected with the previous workings, the mine will be thoroughly ventilated and the continuance of the work facilitated.

A large Cornish boiler and a fair-sized winding plant have been purchased for erection at the main shaft, when it is proposed that sinking, which is fully warranted by the general prospects, will be resumed and continued for another 100ft. (5–2–08.)

Paringa (*vide* page 114, Record).—This property was worked about 40 years ago by an English company, which extracted a large quantity of high-grade material from the surface to a depth of 120ft. For some reason it was then abandoned, and remained so until small parties accepted tributes, and have done a large amount of work in various parts of the property; in each instance exposing copper-bearing material to a greater or less extent, and sometimes with very profitable results. About 15 months ago a company (the Paringa and West Kanmantoo) was formed, with the object of clearing out and repairing the main shaft, which, after considerable trouble and expense, has been accomplished. Main Shaft.—This has been sunk to a depth of 240ft., about midway between the lodes known as the Giant's Grave and Allan's, with openings at the 120 and 240 levels. 120 Level.—A crosscut has been driven E. towards Allan's lode 41ft., when vein matter was met with ranging from 18in. to about 3ft. in thickness, containing bunches of fair-grade material, but taken in bulk, of rather low value, and suitable only for concentrating purposes. At this point a drive has been extended in a N. direction for some considerable distance, and a second crosscut from the drive made E., exposing what appears to be the main, or Allan's, lode. The formation is about 4ft. wide, with from 18in. to 2ft. of low-grade ore-bearing material. Above the drive all the workings, which appear to be considerable, have collapsed, and could not be examined. Judging from the drives, which are very erratic in their course, I am inclined to think the workings are on two separate ore bodies. This point could be determined by continuing the crosscut about 50ft. beyond the present face. 240 Level.—The principal workings at this level have been the driving of two crosscuts, one E. and the other W., for the purpose of intersecting the two lodes mentioned (Giant's Grave and Allan's). E. Crosscut.—This has been advanced 170ft., passing through a formation about 4ft. wide, from which some good copper was extracted. From a short drive N. the face still discloses bunches of very fair ore, consisting of yellow sulphide, black oxide, with a little purple ore and iron pyrites. Am doubtful as to its being the main or Allan's lode, as it is perfectly dry, and does not appear to drain the water from above. If the crosscut were continued another 20ft. any doubt on the matter would be placed at rest. W. Crosscut.—This has been driven 185ft. from shaft. At 145ft. the Giant's Grave lode was passed through. At this point it was small; the drive was continued N. 30ft. along it, and the vein matter shows about 4ft. wide, containing seams and bunches of yellow ore and black oxide similar to the E. crosscut. This drive, if continued N., would probably still improve, as, judging from the past working, the better class ore is in that direction. Further Explorations.—It is evident from general appearances that little or no work has been done beyond that mentioned between the 120 and 240 levels, so that it may be regarded as all new ground, containing a considerable quantity of ore-bearing matter, which the manager estimates in bulk will return from

4 per cent. to 6 per cent. This, with the present price of copper, is not sufficient to be remunerative unless with the aid of dressing appliances, when it could be brought up to a much higher standard. But previous to this expense being incurred the mine should be more developed, chiefly by sinking the main shaft a further depth of 100ft., continuing the crosscuts at the 120 and 240 levels as suggested, sinking winzes from one level to the other, and otherwise exploring the ore bodies, when a more reliable estimate of the quantity and value of the vein matter could be obtained. The further sinking of the main shaft at present I consider the most important. The prospects of the bottom level will justify the expenditure. Machinery.—Machinery on the mine comprises one large Cornish boiler, winding engine, and two Marsh sinking pumps. Recently there has been forwarded to the smelters about 32 tons of ore, yielding from 9 per cent. up to 29 per cent. of copper, giving an average value of about 12 per cent. (23–6–08.)

By the Inspector of Mines (H. Jones).

Queen Bee (*vide* page 123, Record).—The main shaft, sunk some years ago, is 470ft. deep on the almost vertical underlie of the lode, which is from 3ft. to 4ft. 6in. thick, and consists of quartz and ironstone carrying gold and copper. Work is at present being carried on in a small way at the 100ft. level, where a drive has been made 105ft. W. along the course of the lode. At 35ft. from the shaft a winze has been sunk 53ft., the last 26ft. being through good copper ore averaging 15 per cent. The lode at the bottom is 5ft. thick, and consists of quartz, peacock, and black ore, from 16 to 20 per cent. During the last two years about 60 tons of ore have been sent away. Some of it was readily hand dressed up to 34 per cent. With a crushing and concentrating plant on the ground and a winding engine at the shaft, so that work could be started at the 200ft. level, the inspector expresses his confidence that a good payable mine would be developed. (19–8–07.)

Anderson's Claim.— A new find, about one mile from Blinman, on the new road to Parachilna. A considerable amount of prospecting has been done by shallow shafts and open cuts. No defined lode has been found, but bodies of green carbonate and copper glance have been disclosed in most of the workings, and by the continuance of the same system of prospecting there is every chance of finding the main body. Forty eight tons treated at the Blinman gave 2½ tons of copper. (20–8–07.)

Lady Lehmann.—Situated 15 miles N.E. from Blinman. On a hillside about 125ft. above the plain two shafts have been sunk, each to a depth of 30ft., exposing a lode from 8ft. to 10ft. wide, consisting of quartz, ironstone, and blue and green carbonate of copper for 15ft., when sulphide ore is met with; the enclosing rock is soft slate. Near the W. end, and about 100ft. below the top of the hill, a tunnel has been driven on the course of the lode for 140ft. in sulphide ore. A small parcel treated at Blinman gave 3·9 per cent. of copper and 7·3 per cent. of sulphur. It is a good crushing and concentrating show, and, as sulphide ore is at present scarce in the district, the discovery of this well-defined body will doubtless eventually prove of considerable importance. (20–8–07.)

Mount Emily (*vide* page 88, Record).—About 14 miles S. of Blinman. Two lodes striking N.E. traverse the property; the W. one through a small hill, where the outcrop can be traced for fully 100yds. It appears to be of considerable width, and consists of a calcareous shaly formation, with small veins of green carbonate running along and across it, in which patches of grey ore have been obtained. A vertical prospecting shaft has been sunk to a depth of 100ft., and at the 90ft. level a drive following one of the veins has been made for 50ft. S. The ore from this was worth 3·3 per cent. and was dressed to 10 per cent. The formation is very promising and fully warrants testing at deeper levels, where the veins will probably become more compact and richer. About 150yds. E. of these workings there is a large and well-defined outcrop of quartz 6ft. wide, showing stains of copper and small patches of galena throughout. A prospecting shaft has been sunk 30ft., and the indications shown in it and along the outcrop of this fine lode render further prospecting highly desirable. (20–8–07.)

Matheson's, near Leigh Creek (*vide* page 79, Record).—Three shafts have been sunk, two vertical to a depth of 90ft., the other 70ft. on the underlie of the lode, which strikes N. and S. and dips 45° E., and the ore has been stoped out for a length of 70ft. along the line of lode. The formation is from 8ft. to 10ft. wide, and consists of clayslates and kaolin, carrying small veins of green carbonate: the ore gave returns of 9 per cent. and 4 per cent. From one of the vertical shafts a crosscut has been made 80ft. W., and cut what appears to be the continuation of the lode dipping vertically, walls 5ft. apart, with well-defined veins of green carbonate on each wall. Prospects are considered encouraging. (21–8–07.)

Ochre Deposit near Lyndhurst Siding.—About 4 miles N. of Lyndhurst Siding, in one of the banks left by water erosion and standing some 30ft. or 40ft. above the flats, there is a large section of soft stratified rocks—red, yellow, white, and brown in color—which on exposure to atmospheric action are disintegrated into very fine powder; this, it is suggested, might be utilised as pigment. Should the market value prove sufficient to enable work to be carried on at a profit there are many thousand tons available which could be readily removed. (21–8–07.)

Mountain of Light (*vide* page 129, Record).—At the time of the inspector's visit the work of erecting smelters at this mine was in progress, and it was expected that they would be completed in about two months; however, owing to the sudden death of the general manager and the fall in the price of copper, the Tasmanian Copper Company decided to suspend the completion of their works.

The Mountain of Light shaft had been sunk 150ft., and at the 100ft. level a crosscut was made N., which at 150ft. intersected the lode formation 4ft. wide, consisting of sandstone, kaolin, ironstone, and green carbonate; this was driven on E. and W., preparatory for stoping. Several shafts have been sunk on the outcrop of the lode, and its continuance along the line of strike proved for fully 3,000ft. At two of these shafts work was in progress, extending the drives ready for stoping. The fact that there are such large reserves of ore in this mine close to the smelter must be an important consideration for the management. During the operations here Leigh Creek coal has been the only fuel used in the boilers, and has given every satisfaction. (21–8–07.)

Mutooroo (*vide* page 97, Record).—The main shaft, 232ft. deep, is well equipped, and driving N. to connect with old workings is in progress from it. The lode formation can be traced for fully a mile on the surface of the property. In the S. portion, three-quarters of a mile from the main shaft, operations are carried on at three shafts, each 110ft. deep; they are 300ft. apart, and all show the sulphide lode to be of great width. Driving is in progress from the bottom of each shaft to connect them and provide ventilation for stoping. This property has a very promising future, having such large bodies of sulphide ore in sight, with every indication that they will be persistent in depth. (31–8–07.)

Mutooroo Consols (*vide* page 99, Record).—Adjoining and S.W. of the Mutooroo. The shaft has been sunk 74ft. vertical and 38ft. on the underlie, in a formation about 13ft. wide, consisting of quartz and ironstone, stained in places with copper carbonates. About 18 chains N.E. from the S. shaft a prospecting shaft reached a depth of 20ft. through diorite. It is in a good position to pick up the continuation of the Mutooroo sulphide lode, and should be continued. (31–8–07.)

Mutooroo West (*vide* page 98, Record).—At 60ft in the shaft a lode 8ft. 6in. wide was cut, containing 2 per cent. to 3 per cent. copper and 35 per cent. sulphur. The shaft was then continued on the underlie of the lode, which, at 110ft., was 20ft. wide, and at 160ft. a crosscut was in 14ft. through solid sulphide ore, and no sign of the hanging-wall, the ore carrying more copper than in the higher levels. (31–8–07.)

King's Bluff (*vide* page 223, Record.)—The main workings are situated near the base of the Bluff, where bold outcrops of quartzite occur from 50ft. to 100ft. above the plain. A number of quartz veins traverse the quartzite, striking about N. and S., and dipping vertically; they are from 10ft. to 30ft. apart, and vary from 3in. to 18in. in thickness. Near the base of the hill the quartzite beds are divided by a belt of slate and sandstone, and at this point the veins carry the best gold. A considerable amount of work has been done on several of these veins or reefs, and without exception they all carry fair gold in the vicinity of the junction of the

quartzite and slate beds. On one of these reefs the present working shaft has been sunk on the underlie at an angle of 45°, keeping the slate bed as a footwall, down to 460ft. The reef in the bottom of the shaft is 1ft. thick, and consists of quartz and iron pyrites. At the 435ft level a crosscut has been made W. for 54ft. Near the top of the shaft some very good gold was found, and a considerable amount of stoping was done there. The inspector considers that developmental work should be carried out from the shaft by crosscutting E. and W. above water-level to test the value of the numerous parallel veins adjacent; also a winze should be sunk to test the reef under the slate bed. By carrying out these works there is every chance of discovering a rich reef close to the present workings. The shaft should be sunk 100ft. deeper to prove the value of the sulphide zone, and in search of a better supply of water for mining purposes. The mine is equipped with a pair of 8in. winding engines, a five-head battery (900lb. stamp), and a 10 h.p. portable engine. (31–8–07.)

Koh-i-noor (*vide* page 226, Record).—Three small parallel quartz lodes traverse the property, striking N. and S. and dipping W. 35°; they are from 3in. to 6in. thick, and consist of quartz and ironstone, carrying rich gold in places. The country rock is slate, striking E. and W., and as the reefs cross the rock at right angles displacements are caused, and at these points the rich gold is found, both in the reef and for some distance in the cleavage of the slate on each side, making it necessary to work some country rock with the reef to secure all the gold. An effort should be made to prospect this property to a greater depth, where there is every chance of the veins making larger and being more compact.

A considerable amount of work has been done in sinking and driving to test the value of the reef at different points, and about 10 tons of ore sent away for treatment averaged 2½ozs. gold per ton. Two samples of ore were taken by the inspector—No. 1, from quartz and ironstone veins 6in. thick, assayed 4ozs. 14dwts. per ton; No. 2, from face of drive, where the formation is 3ft. wide, consisting of slate and small veins of quartz and ironstone, 8ozs. 1dwt. per ton. (7–9–07.)

Western River Silver Lead Mine (*vide* page 191, Record).—Situated at Western River, Kangaroo Island. Work mainly carried out from a vertical shaft 100ft. deep, sunk on the side of a high hill. At the 60ft. level a crosscut has been made N. for 20ft., cutting the lode formation, which is 8ft. wide, and consists of quartz, ironstone, and galena. The metal-bearing portion is near the hanging-wall and is 2ft. thick, and along it a drive has been put in E. for 15ft., showing high-grade galena all the way. At the 100ft. level the lode has been driven on E. for 32ft., showing a vein of galena and a little quartz 2ft. thick all along. Close to the shaft on the W. side the lode has been faulted. A drive S.W. has been made for 66ft., the last 30ft. of which is in settled country W. of the fault; and at the end a crosscut N. has, at 12ft., struck quartz, which appears to be the hanging-wall portion of the lode. A short distance up the hill W. of the vertical shaft a tunnel has been driven for a distance of 44ft.; the lode here was 3ft. wide, and a patch of high-grade ore has been stoped 20ft. long by 40ft. high. Near the top of the hill a considerable quantity of ore has been removed by open cut. About 50yds. W. an underlie shaft has been sunk 40ft. on the formation, and from the E. side of it stoping has been done on ore worth 50 per cent. lead and 8ozs. silver. From a deep gully about 50yds. S.W. of this shaft a tunnel has been driven into the hill for 70ft., but has not yet reached the lode.

From indications along the line of outcrop, extending for a quarter of a mile, and as shown in the various workings, the rich ore bodies appear to be in shoots dipping E. at an angle of 30°, with lower-grade ore between. The lode is well defined and should be prospected at depth. (11–9–07.)

Warrakimbo.—Situated 35 miles N.W. from Quorn.—The outcrops of two large parallel copper lodes are traceable on the surface for nearly the whole length of the property, strike N. and S., dip E. W. of the above there are indications of other lodes, which will probably be opened out later on. The principal work at present is on the E. lode, which traverses a hill 260ft. above the plain. Near the top a considerable amount of shaft sinking and driving has been done. A vertical shaft 45ft. deep is connected by drives with an underlie shaft, and from these workings between 40 and 50 tons of 30 per cent. copper ore have been marketed. The

formation here appears very wide, but no cutting has yet been made right across. What appear to be the true walls of the formation are 70ft. and 80ft. apart. The hanging-wall is hard limestone and the footwall sandstone. The formation between is calcareous, with large deposits of micaceous iron and copper ore in pockets and veins throughout.

The present company is sinking a vertical shaft on the hanging-wall side of the formation. This shaft, down 57ft., is now through the country rock, and is getting into the lode, some very nice yellow and peacock ore showing in the bottom of the shaft, a sample from which assayed 22·3 per cent. copper. This shaft should be continued to at least a depth of 100ft, where crosscuts should be put right across the formation to determine its width and value. Should this large deposit of high-grade ore continue to go down—and it has every appearance of so doing—there is nothing to prevent this property turning out to be a rich mine. Thirteen samples taken assayed from 1 per cent. to 24·5 per cent. (27–9–07.)

Wallaroo Extended Copper.—Situated about two and a half miles from Kadina, adjoining the W. boundary of the Wallaroo Mines property. Its favorable position warrants the expenditure of capital to test the value W. of the belt of disturbed country which runs nearly N. and S. between the two properties. Many prospecting shafts were sunk to various depths in the early days, and from 200yds. to 400yds. of costeaning done, running N. and S., evidently unsuccessful attempts to pick up the continuation of some of the rich copper lodes on the adjoining properties.

The present company found ore indications in a costean running across the W. block, and here No. 1 shaft has been sunk to a depth of 81ft., timbered with square sets and back laths, making the shaft 6ft. by 4ft. in the clear. At a depth of 18ft. a ferruginous quartz lode was cut, which kept in the shaft down to the 60ft. level. At the 55ft. level a little water was cut, and the course of the quartz lode, which at this level is 4ft. wide, bearing N. and S., and dipping 85°, was opened out upon. The N. drive at 15ft. met with what appears to be an E. and W. fault, cutting off the lode. A drive along the lode S. of the shaft was then made 27ft., the formation for the first 24ft. being from 3ft. to 4ft. wide, and for the last 3ft. it narrowed down to only 5in. wide. The ore at this level in both drives being of little value, the sinking of the shaft was continued, and a lode of sulphide ore 4ft. wide met with, consisting of hornblende and schists, with yellow and purple ore throughout. The shaft is now down 20ft. into this lode, which appears to improve in value as depth is attained. The sinking of this shaft should be continued to 100ft. or deeper, water permitting, then drive both ways on the course of the lode to prove its extent and value, and also to obtain the proper bearing and dip of the ore body, in case it should be decided at any time in the future to test its value at greater depth by boring.

No. 2 shaft is situated about three-quarters of a mile from No. 1 shaft on the E. block, and near the W. boundary of the Wallaroo Mines property. This shaft has been sunk to a depth of 86ft., and, like the other, is well timbered with square sets and back laths for about 56ft. At about 20ft. from the surface a ferruginous quartz leader of from 1ft. to 2ft. thick was cut, which kept in the shaft down to the 70ft. level. At that depth a well-defined wall was cut, underlying a little to the W., and bearing nearly N. and S. On this wall a bunch of sulphide ore was met with, about 8ft. long and 4ft. wide, consisting of grey rock, copper pyrites, and bornite. This kept in the shaft to the 90ft. level. At that depth what appears to be a large cross-course was cut (very soft) bearing N. and S., dipping 72°. The bunch of ore followed down is in the W. side of the shaft at this level, and the bottom of the shaft is a few feet down into the faulty country rock.

At the 80ft. level about 25ft. of driving has been done to the W., following a quartz leader about 1ft. thick, with specks of copper pyrites. This kept in the drive for about 4ft. and then went out to the S. The remainder of the drive was continued on a small branch leader off the main one. At the same level a crosscut was put in S. for 6ft. Off this, 8ft. of driving has been done W. and 12ft. E., following the sulphide ore cut in the shaft, which continued in the drive for about 9ft., when a N. and S. crosscourse came in and cut off the ore Probably this is the same fault as the one in the bottom of the shaft. It is evident that this shaft, from the 80ft. down, is in disturbed and faulty country, and that the bunches of ore found between the faults are only indications of a lode existing, and not far off.

Water in the shaft is about 1,000galls. per day; it was found too much for the windlass, and work was stopped here for the present.

Samples of ore taken assayed from a trace to 5·5 per cent. copper. (30–11–07.)

Gordon Reward (*vide* page 209. Record).—Near Williamstown. On the top of a small hill, about 100ft. above the gully, a considerable amount of work has been done in shaft-sinking, trenching, and costeaning, to prove the value and extent of an auriferous drift deposit, which extends for about 200yds. in length and 100yds. in width. This deposit consists of water-worn pebbles, sand, and clay, from 7ft. to 8ft. thick in the centre, and tapers to the edges, giving an average thickness of washdirt of from 4ft. to 5ft.; it is capped 2ft. of soil, rests on clay or very soft slate formation, and could be cheaply worked by a tunnel from the side of the hill or by hydraulic sluicing, if the gold contents warrant the necessary expenditure. Between 400ft. and 500ft. of driving in various directions has been done from the shafts at from 10ft. to 12ft. in depth, the lower part of the drives being in the soft claystone bottom, and the upper in the washdirt. A small quantity of rutile is found through the matrix in places, mainly in the vicinity of the shafts.

In a gully about 300yds. from the main workings, and close to the treatment plant, there appears to be a fine spring of water, from which possibly all water required could be conserved.

Thirty-one samples, taken from various parts of the drives and dumps, gave on assay from *nil* to 1dwt. of gold per ton, and 29 of them averaged 1·6 per cent. rutile. From these samples and those panned off by the Inspector at the mine it seems evident that the gold-carrying portion of the washdirt is from 3in. to 9in. thick near the junction of the wash and bottom and of low value, leaving a considerable portion above practically unproductive, and rendering the problem of the profitable treatment of the deposit as a whole a difficult one.

There is a 3-H.P. oil engine and a puddling plant on the ground. (27–1–08.)

Pioneer Gold Mine (*vide* page 265, Record).—Near Callington. A well-defined lode formation runs through the hill; strike N.E., with a slight dip N.W. In the early days a considerable amount of work was done here in search of copper ore. When the present company took over the property two shafts were sunk about 80ft. apart, one at each end of the old workings; the one on the N.E. is down 95ft. and the other 100ft. vertical and 25ft. on the underlie. A little water has been making in this shaft from 80ft. downwards, and as the scarcity of water here at present makes it impossible to economically treat the material raised, the inspector advises that this shaft should be continued for another 40ft. or 50ft., when he thinks an ample supply will be met with; and when the sinking is completed a crosscut should be put in W., which would cut the old lode and give a good length of stoping ground An Otis ball mill and plant is erected on the ground. Eighty tons from this mine treated at Mount Torrens Government Cyanide Works some time ago, gave a return of nearly 8dwts. per ton, the gold being of particularly good quality. (28–1–08.)

Currency Creek (*vide* page 47, Record).—Situated on private property, about four miles from Goolwa. The surface is covered with alluvium, and at one place, where cut through by the creek to the bedrock, a vein of rich copper ore is exposed. About 60ft. away from the creek a shaft was sunk, vertical for the first 20ft. and 45ft. on the underlie, making a total depth of 65ft. At the time of the inspector's visit work had been suspended for some time, and the water in the shaft had risen to within 20ft. from the surface; he was therefore unable to make an examination underground, but from good authority gathered the following information:—At a depth of 32ft. a drive was made 15ft. S.W. on the course of the lode, which in the shaft and drive is from 12in. to 18in. thick, and consists of ironstone and quartz carrying blue and green carbonate. In the face of the drive what appeared to be a new lode was cut, 12in. thick, striking E. and W.; no work was done on it. At 47ft. in the shaft the lode was driven on S.W. for 20ft.; it is well defined and from 6in. to 15in. thick; a sample from the face of this drive assayed 4½ per cent. copper. At 65ft. a drive was put S.W. for 12ft., and at 10ft. a lode formation from 12in. to 18in. thick, striking E. and W., consisting mainly of ironstone, was struck.

Two parcels of ore have been sent away: 2¼ tons averaged 28 per cent. copper and 2½ tons 4·5 per cent. (12–2–08.)

Wood's Mine.—Situated about 6 miles N. of Goolwa, on the top of gradually rising ground, about 150ft. above the plain. The outcrops of three quartz reefs traverse the property, striking N.E. and dipping S.E.; and near the W. one of these a vertical shaft has been sunk to a depth of 30ft. No work has been done for some time, and the bottom portion of the shaft has fallen in. No opinion can be expressed on the property until more work has been done. (13–2–08.)

Parara (*vide* page 111, Record.)—Near Ardrossan. On a small rise three parallel lodes strike N. and S. and dip W. Most of the work has been done on the E. lode, where three shafts have been sunk. E. shaft started on the outcrop and sunk on the underlie 60ft. S. shaft, 30ft. W. of the outcrop, sunk 100ft. vertical and 24ft. on the underlie; total, 124ft. N. shaft (sunk by the original holders), situate 50ft. W. of the outcrop and 100ft. N. of the S. shaft, is 120ft. vertical and 120ft. underlie; total, 240ft. This shaft has been cleaned out, timbered, and put in order, and is used as a main shaft by the present company.

At 85ft., in the S. shaft, fully 10ft. of the lode formation is exposed and no footwall; it consists of quartz, ironstone, and felspar, with green carbonate throughout. At this level a shoot of rich grey ore was met with and several tons, returning 38 per cent. copper, removed. A plat has been cut here on the W. side of the shaft and a drive put in 18ft. S. At the 124ft. level a S. drive has been made for 60ft. in the hanging-wall portion of the lode formation, which is mainly composed of copper-stained porphyry and schist. A drive N. of 100ft. connects this with the N. shaft, and at about 10ft. along this drive a winze has been sunk to the 180ft. level. To the E. from the start of the winze a crosscut has been made 20ft.; the first 6ft. through the footwall portion of the lode and the remainder through country rock. At the winze the lode formation is from 10ft. to 15ft. thick, and consists of quartz, ironstone, and schorl, showing green carbonate and streaks of grey ore all through.

N. Shaft, 180ft. level, crosscut made W. 54ft.; first 34ft. through country rock and balance in a well-defined sulphide lode 20ft. thick, formed of felspar, quartz, and schorl, carrying small veins of rich yellow ore; this lode is from 40ft. to 50ft. W. of the old one, and the operations of sinking and crosscutting have proved two well-defined lodes, both of which contain small rich patches of copper ore and a little gold, and have every indication of improvement as depth is attained. From the same level (180ft.) a drive has been made S. for 70ft. on a quartz reef 2ft. thick, and thence extended 30ft. S.E., where it is connected with the winze from the upper level.

Prospecting Shaft.—This was started on the outcrop of the E. lode and sunk on the underlie for 60ft., the shaft being all the way in the lode formation, which is from 10ft. to 15ft. thick, mostly of quartz and ironstone, copper stained. At 35ft. a drive was made N. for 30ft. Some very rich pockets of ore were worked from this shaft, and the parcels sent away returned 30 per cent. copper and 7dwts. gold per ton.

On the W. lease, half a mile W. of these workings, well-defined quartz bodies from 2ft. to 10ft. thick outcrop; they strike N. and S., parallel to the other lodes, look promising, and will probably be prospected later on.

The developmental work done proves the continuity of the lodes for a considerable length, they are highly mineralised, contain rich patches of copper ore, and carry a little gold; they have all the characteristics denoting persistence in depth. To further develop the mine it is suggested that the N. shaft should be unwatered to the 240ft. level, and a crosscut extended across both lodes at that depth.

Assays of ten samples taken ranged from a trace to 31 per cent. copper, and from a trace to 10dwts. gold per ton. (21–2–08.)

Wheal Ellen, now held by the Commonwealth Silver-Lead Co., Limited, of Sydney (*vide* page 191, Record).—Situated about six miles N. from Strathalbyn, and about two miles from Gemmell's railway station. The principal workings are on the top of a hill about 220ft. above the bed of the creek. Apparently these lodes traverse the hill, strike N. and S., and dip 70° E. The outcrops consist of quartz and ironstone, and can be traced on the surface for a considerable distance. The work done in the early days was confined to the central lode, on which three hauling and two air shafts have been sunk to depths of from 20 to 60 fathoms. The three working shafts are equipped with good ladders, making it comparatively easy to examine shafts and workings down to the water-level, which now stands at 200ft.

from the surface. All the shafts have been sunk on the underlie of the lode, and the two northern are connected by drives along the lode at various levels, and the two middle shafts, which are situated 200ft. S., are also connected by drives at the 100ft. and 200ft. levels.

North Shaft—At the 170ft. level a drive has been made S. on the lode for 20ft.; the formation is from 1ft. to 2ft. thick, and consists mostly of gossan, schist, and green carbonate, carrying a fair amount of lead and silver and a little gold. N. a drive extends 80ft.; the lode formation is here 1ft. to 2ft. thick, and carries lead, silver, and gold. At the 154ft. level a drive 30ft. S. shows the lode 1ft. 6in. to 2ft. thick. On the N. side it extends 60ft.; the lode in the face is 2ft. thick, and in the stope over this drive the lode formation ranges from 2ft. to 14ft. wide, carrying gold, silver, and lead; 68 tons of this ore, as it came out of the stope, were sent to Mount Torrens Government Works for treatment, and returned nearly 6dwts. gold per ton. S. drive, 140ft. level, is in 30ft.; the lode consists of siliceous ironstone, copper-stained, and carrying gold, silver and lead. S. drive, 100ft. level, extends 80ft.; the lode for the first 50ft. is 3ft. thick, and for the last 30ft. only a few inches; the drive has for the latter portion probably followed a branch, and the main body will be found either in the hanging or footwall side of the drive. N. drive, 100ft. level, extends for a total of 115ft.; at 75ft. it is connected with the air shaft; the lode formation for the whole distance is from 1ft. to 3½ft. thick, and consists of quartz and ironstone. From the water-level to the surface in this shaft the lode is well defined, of a soft nature, could be easily and cheaply worked, and, with a treatment plant on the ground, should pay well.

Middle shaft has been sunk on the underlie, and is half way between the old lead shaft and the N. shaft; it was intended for a main hauling shaft, is strongly timbered with square sets, still in a splendid state of preservation, 12ft. by 6ft. in the clear, and the shaft is in good order all the way down. Judging from the small amount of work done from this shaft it was probably sunk only a short time before operations ceased. At the 200ft. level a drive has been extended S. for 100ft., where it connects with the air shaft. At 60ft. in this drive a fine sulphide lode was met with 4ft. wide, and composed of zinc-blende, galena, and pyrites. Stoping has been carried out here for a length of 40ft. and 35ft. high; at one place in this stope the lode opened out to about 14ft. wide. Within recent times parcels of ore totalling 800 tons were sent to the smelters and returned 20 per cent. lead, 25 per cent. zinc, and 16ozs. silver per ton. At the 100ft. level a drive S. for 100ft. also connects with the air shaft. The lode in this is from 2ft. to 6ft. thick, composed of ironstone, quartz, and schist. At about 80ft. in this drive a winze has been sunk to meet the stope. The ore all the way down is sulphide, 4ft. thick, and between well-defined walls. There appears to be a fine block of ore containing many thousand tons between these levels ready for stoping out. Nothing has been done on the ore body N. from this shaft. The 200ft. along the line of lode between the two shafts is practically untouched, and judging from the other portions of the mine it should, when opened up, turn out a large quantity of ore. Old lead shaft, situated about 250ft. S. of the middle shaft on the same line of lode, appears to have been the main working shaft in the early days. Most of the work at that time was evidently done from it, but operations having been suspended so long all the drives from off the shaft had fallen in, and therefore this part of the workings could not be properly examined, but from what could be seen it was quite evident that payable ore had been operated on. Considering the height and consistent width of the lode through all the workings, its lead, silver, copper, and gold contents, and the amount of ore available, this property is a valuable one, and, when properly developed and equipped with winding machinery and an up-to-date treatment plant at the mine, should turn out a remunerative concern. Twenty samples taken by the inspector gave on assay from traces to 4ozs. 6dwts. gold, 24ozs. 3dwts. silver per ton, 18·5 per cent. copper, 31 per cent. zinc, and 32·8 per cent. lead. Ten of the samples contained all five metals. Eight showed gold, silver, copper, and zinc; one gold, silver, zinc, and lead; and one gold, silver, zinc, and lead. (24–2–08.)

Mr. Grundy, manager of the Mount Torrens Government Battery and Cyanide Plant, in a report on this property, gives details of the parcels treated and tests made at Mount Torrens. The gold contents are irregular, ranging from 1dwt. to 25dwts.

per ton, and he therefore recommends that trial parcels of not less than 20 tons from different parts of the property be treated to prove the value throughout. The result of the 68 tons already treated gives an average value of 18s. 4d. per ton, and is very satisfactory. The gossan gold-carrying ore can be cheaply mined and is good milling ore. He also points out that two untried lodes exist about 135ft. E. and W. of the centre lode, to which all the work seems to have been confined; and expresses his surprise that no prospecting work has been carried out on these, as they appear to have equal possibilities with the central lode, from which such good results have been obtained.

PHOSPHATE.—In the hundred of Reynolds, about 11 miles from Jamestown. Some fair nodules of high grade phosphate rock are to be seen in a good many places on the surface, but no deposit has yet been found. (20–3–08.)

AJAX (*vide* page 196, Record).—Situated 8 miles from Waukaringa. The principal workings and the crushing plant are on the W. side of a small hill, through which a well defined lode runs; the outcrop can be traced on the surface for one and a half miles, striking N.E. and dipping N.W. at an angle of 45°. Five underlie shafts have been sunk to depths varying from 60ft. to 350ft., and from these some hundreds of tons of lode material have been raised and crushed by the 10-head battery on the mine. All the ore treated was fairly consistent in value, yielding by battery and cyanide from 9dwts. to 10dwts. gold per ton. When operations were carried on here, three or four years ago, 60 to 70 men were employed, but the great drawback was the absence of water; all the water required for the battery and boilers had to be carted for a distance of four miles, and for cyanide treatment the tailings had to be carted eight miles to Waukaringa. Owing to the expense thereby incurred, it was impossible to make the mine pay, and work was suspended until better means of water supply could be arranged. In order to, if possible, overcome this difficulty and restart work at the mine, the company recently decided to resume sinking at the old vertical shaft, which some years ago had been sunk to a depth of 172ft., and this work is now in progress. A winding plant and vertical boiler have been erected, and the shaft sunk 20ft., making the total depth from the landing 192ft. Water making 50galls. in 24 hours. The shaft is well situated, being about 100yds. from the battery, and about 270ft. N.W. of the outcrop of the lode. Judging from the indications in the deep underlie shaft, there is every prospect of cutting a good supply of water when the lode is intersected, at about 275ft., by the shaft now in hand.

The past records of the mine show that, with adequate water supply and a cyanide plant on the ground, it has every chance of turning out a profitable mining venture. (8–4–08.)

HOOPER BROS'. COPPER SHOW.—Situated 10 miles N.W. of Waukaringa. A well-defined lode formation striking N.E. has been tested along its outcrop for about 300ft. by a number of shallow pits; it consists of ferruginous quartz impregnated with copper carbonate and showing a little copper glance; it is from 2ft. to 2ft. 6in. wide, the dip appears to be vertical, and the enclosing rocks are slate and sandstone. A vertical shaft has been sunk on the lode to a depth of 30ft. At 15ft. a drive was made N.E. along the lode, and at the end a winze sunk for 14ft.; the lode here is 6ft. wide, and carries green carbonate and copper glance. From the bottom of the shaft, 30ft., a drive along the lode has connected with the winze; the lode underfoot seems to be going down strongly.

Such a small amount of developmental work has been done so far that a definite opinion cannot be expressed, but the discovery appears to be a valuable one, and testing at depth by continuing the sinking of the present shaft is fully warranted. Three samples taken from the ore dumps assayed 7 per cent., 9·4 per cent., and 13·8 per cent. respectively; they also each contained 1dwt. of gold per ton. A sample of picked ore from the winze assayed 46·5 per cent. copper and 2dwts. gold per ton. (18–4–08.)

MOUNT GRAINGER, MEDORA, and DUSTHOLES (*vide* pages 250, 248, and 214, Record).—At Mount Grainger a main working shaft has been sunk 248ft. from the brace, divided into three compartments, closely timbered with jarrah; two of the compartments have runners fixed for hauling purposes, and measure 4ft. by 4ft. 6in.

in the clear; the third compartment, 3ft. 8in. by 4ft. 6in., is for ladder-way and pump column. Open sets have been put in at the 120ft. and 220ft. levels, and crosscuts made to intersect the lode; at both levels gold-bearing lode matrix from 28ft. to 30ft. wide was passed through. Drives were made N. along the course of the lode, and some rich shoots of ore met with, and from the N. end of the 120ft. level a rise, in which coarse gold could be seen, was put up to connect with the underlie shaft. Stoping was carried on here, and 505 tons were treated at the Petersburg Government Cyanide Works, yielding 216ozs. 13dwts. 13grs. of gold, or 8dwts. 5grs. per ton, valued at £3 18s. 5½d. per ton.

At the 220ft. level a winze was put down on the underlie of the lode for 126ft.—equal to a vertical depth of 325ft.—and in this drives were made at 70ft. and 90ft.; rich ore was found at the 70ft., and the whole of the formation above and below the 220ft. level gave payable results. Tramways are laid at both levels, poppet-heads erected, and tramway laid over the viaduct to the battery. A Cornish boiler, Roby engine, and a fifteen-stamp battery and tables are substantially erected and well housed in. Blacksmith shops, assay office, and manager's residence are also erected.

Seven hundred and fifty tons were treated at the mine (battery treatment only), but only about 3dwts. per ton were obtained from the tables. Most of the gold is fine, and the small return is accounted for by the scarcity of water, which, through being used repeatedly, became ineffective.

At the Medora a vertical shaft has been sunk 200ft.; it is situated about 600ft. S. of the Mount Grainger shaft, and on the same line of lode. From the 114ft. level a crosscut was put in which, after passing through 24ft. of country rock, entered the lode matrix and proved it for a distance of 28ft. A rise was then put up to connect with the underlie shaft and 200 tons of ore mined, which on treatment at the Petersburg Cyanide Works yielded 182ozs. 6dwts. 23grs. of gold, valued at £3 16s. 2d. per oz.—an extraction of 18dwts. 5½grs. per ton. About 15 chains further S. continuations of the same lode have been proved by costeans and shafts, and 6 tons treated at Petersburg gave an average of 13dwts. 14grs. of gold per ton. The lode formation on these leases is large, measuring up to 30ft. in width. It continues through the full length of the properties, and in every instance where opened up was proved to contain payable ores.

The Dustholes leases are situated on another range, about three and a half miles W. by N. of the Grainger and Medora. The lode is extensive, and traverses the full length of the leases. It has been tested by costeans and trial holes, and in almost every case gold has been obtained; 138 tons treated at Petersburg returned 55ozs. 7dwts. 19grs. of gold, value at £199 5s. 8d., the average yield being worth 28s. per ton.

The inspector expresses his opinion that these properties could be successfully worked under one management, and that, considering the very satisfactory extraction of gold by the Petersburg Government Cyanide Works, the abundance of ore for treatment and the advantageous local conditions, they, with some further modern machinery and economic management, should prove highly payable. He feels assured that the water difficulty would be overcome by deepening the shaft. (28–9–07.)

In a later report additional information is given regarding the Dustholes. Most of the ground is hilly, portions being about 100ft. above the plain. Four well-defined lode formations can be traced throughout by prominent outcrops striking N.E. and dipping N.W. Prospecting has been confined to the eastern body, from which ore has been treated as mentioned above. It is from 25ft. to 30ft. wide, and consists of ferruginous quartz, quartzite, sandstone, and slate, all carrying a little gold. A number of small veins of quartz and ironstone cross the formation at right angles, and these appear to carry the best gold. From information gathered regarding various wells in the locality it is estimated that a good supply of water could be obtained at from 140ft. to 150ft. in depth. It is a valuable property, and should pay were it worked on an extensive scale. Samples taken assayed from a trace to 3ozs. gold per ton.

Regarding the Mount Grainger and Medora, since the last visit a considerable amount of prospecting work has been done in various places along the outcrop, between the Medora main shaft and the Mount Grainger workings, and several new shoots of payable ore discovered, which will be proved in depth by the connecting drive now in hand. The principal work in progress at these mines is at the 114ft.

level in the Medora shaft, where from the E. crosscut a drive has been started N. in the hanging-wall portion of the lode. At 18ft. a small vein was cut, carrying good gold; this drive should be continued and connected with the Mount Grainger main workings, thereby proving the value of this large body of ore for a distance of 600ft. along its course and rendering available for stoping a large block of ground that should prove payable. The great difficulty in the way of working these mines successfully and on an extensive scale is the inadequate water supply, and in order to overcome this trouble it is suggested that the Mount Grainger shaft be sunk another 80ft., making the total vertical depth 320ft. From indications in the underlie shaft sunk from the 220ft. level an ample supply should be tapped at that level, or probably sooner. When this work is done driving on the course of the lode at the 300ft. level should be started to intersect and develop the rich shoots of ore previously located in the drives from the underlie shaft below the 220ft. level. (28–4–08.)

Ochre Mine, at Oodlawirra.—Situated about three quarters of a mile from Oodlawirra Railway Station, and only about 200yds. from the railway line. A large formation of iron oxide outcrops, and can be traced for a considerable distance on the surface. It strikes E. and W., and appears to be from 65ft. to 70ft. wide, but neither of the walls have yet been disclosed. Several small pits have been sunk in the formation, exposing a great quantity of high-grade ochre. A main working shaft has been started, and is now down 35ft., and a little driving has been done at the bottom and at 25ft. In all these workings the iron oxide is abundant, and comparatively free from deleterious material. A parcel of ore from the shaft, treated in Melbourne, give the satisfactory return of 80 per cent. ochre. Considering the favorable position of this deposit, and the quantity of ochre available, it should prove to be highly remunerative when equipped with the machinery required to treat this kind of ore. (25–4–08.)

Poona.—Situated 2 miles N. of the Moonta, and adjoining the N. boundary of the Paramatta. The railway from Moonta to Wallaroo runs through the centre of the leases, close to the mine. Five shafts, varying in depth from 80ft. to 283ft., have been sunk on the course of the lode, and, judging from the size of the waste material at surface, a considerable amount of driving and stoping must have been done from these shafts in the past. The main working shaft at present is situated about 20ft. from the outcrop of the N. lode. The first 55ft. is vertical, and is 6ft. by 4ft. in the clear, securely timbered, and divided off for hauling and ladder road. From the 55ft. level, where the lode was intersected, the shaft was continued on the underlie to a depth of 283ft. from the surface. No. 1 level, 98ft. from the surface—Driving on the course of the lode E., has been carried on for a distance of 120ft. From the face of the drive a winze has been sunk to a depth of 65ft. No. 2 level, 163ft. from the surface.—At this level 30ft. of driving on the course of the lode has been done to the W., and 270ft. E., where this drive is connected with the vertical shaft, E of the railway line, and also with the winze from No. 1 level, thus making the ventilation good throughout the workings. At a distance of 90ft. from the shaft in the E. drive a crosscut has been driven S. to intersect the middle and S. lodes. The former was cut at a distance of 40ft., and is from 2ft. to 3ft. wide; the second, or S. lode, was intersected at a distance of 80ft., thus proving three parallel lodes to exist in the property, only 40ft. apart, bearing E. and W., dipping N. Judging from the appearance of the old workings, there must have been a considerable amount of stoping done on the S. lode from this level upwards, and the lode formation operated on appears to have been from 4ft. to 8ft. wide in places, and, it is stated, of high value. Unfortunately, owing to the length of time these workings had been lying idle and under water, the timber in the levels was decayed, and had fallen in, making it impossible to examine the unworked parts of the lode. Very little work has been done on the N. lode at this level, except driving. Where exposed, it looks strong and likely to continue down to a great depth; it is from 2ft. to 6ft. wide, and consists of quartz, quartzite, and felspar, with green carbonate and grey and black ore distributed through the matrix. With concentrating plant on the mine this lode should prove highly payable. No. 3 level, 223ft. from the surface.—Driving has been carried on both E. and W. on the course of the N. lode. The W. drive is in 117ft. from the shaft, and the E. 172ft. At that point a connection was made with the winze sunk from No. 2 level. No. 4 level, 283ft. from the surface.—A drive E.

on the course of the lode has been put in for a distance of 90ft. From this drive 12ft. E. of the shaft a crosscut was started, with the intention of intersecting the middle and S. lodes, and proving their values at this depth, but unfortunately work at the mine was suspended before that was accomplished. The crosscut is in a total distance of 75ft. At 40ft. the middle lode was passed through; it is from 2ft. to 3ft. wide, and shows a fair percentage of yellow and purple ore. Taking the distance the lodes are apart in the higher level, 5ft. or 6ft. more crosscutting from present face should intersect the S. lode, from which large quantities of high-grade ore were extracted in the early days of the mine. The lower portion of the workings up to No. 2 level is under water at present, but as the water makes only about 4,000galls. per week, and the workings are not very extensive, it should not take long to unwater the mine. The future prospects of this property are exceedingly promising, and with the necessary capital to develop the lodes at depth, it has every chance of turning out a successful mining venture. (5–6–08.)

WHEAL ELLEN MINE